



State of Michigan
Jennifer Granholm, Governor

Michigan State Housing Development Authority
Keith Molin, Executive Director

Office of the State Archaeologist

Michigan Historical Center
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Lansing, MI 48909-8240
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December 7th, 2009

Mr. Sean B. Dunham
Commonwealth Cultural Resources Group
2530 Spring Arbor Road
Jackson, MI 49203

RE: Archaeological Survey on State Land, Archaeological Exploration Permit 2009-5,
Proposed Exploration Drilling and Geotechnical Soil Boring Locations, Back
Forty Project, Aquila Resources Inc./HudBay, Menominee County

Dear Mr. Dunham:

We have received your letter of December 2nd describing archaeological survey conducted on state land in portions of Section 12, T35N – R29W, Menominee County. The survey was conducted under Archaeological Exploration permit 2009-5. The survey was designed to determine whether proposed exploration drilling or geotechnical soil boring activities conducted as part of the Aquila Back Forty project would affect archaeological resources present on state land.

As a result of the survey, Commonwealth Cultural Resources Group (CCRG) identified four new archaeological sites: a linear earthen surface feature, two potential garden beds, and a complex of linear earthen surface features. The Office of the State Archaeologist will assign site numbers to these locations so they can be added to the state archaeological site file. CCRG established a 45-meter buffer zone around each of the sites to protect them from being disturbed by the proposed drilling activities.

We note that three of the four newly identified sites are in an area of decreased archaeological sensitivity rather than in an area of high archaeological sensitivity. This indicates the importance of careful survey of both high sensitivity and decreased sensitivity areas. We assume that a comparison of the survey results for the different sensitivity areas will be a topic of discussion in the final report.

CCRG states that none of the proposed exploratory drilling locations and geotechnical soil boring locations coincides with any of the newly identified archaeological sites, or with the buffer zones around those sites. Consequently, CCRG expresses the opinion that the proposed drilling work will not affect archaeological resources. We agree with this opinion, provided that the proposed drilling locations do not change. If a change in one or more of the locations is contemplated, information about the new location(s) needs to be submitted to the Office of the State Archaeologist so we can evaluate the potential effect upon cultural resources.

If you have any questions, please contact me at (517) 373-6358 or at halseyj@michigan.gov; or contact Dean Anderson at (517) 373-1618, or at andersond15@michigan.gov.

Sincerely,

**John R. Halsey
State Archaeologist**

**cc. Eric Thompson, DNR
Bob Mahin, Aquila Resources
Steve Koster, ERM**

Comments on the Archaeological Reports Included in the
Environmental Impact Assessment for the Back Forty Project

The Back Forty project area includes areas of high archaeological sensitivity that can be characterized generally as those areas closer to the Menominee River. Archaeological resources are also present in portions of the project area further away from the river, but the density of sites is significantly greater in areas closer to the river.

Prior to the recent archaeological survey conducted for the Back Forty project in the project area, there were at least seven known archaeological sites located essentially along the river north of the project area. Those sites include pre-contact Native American village sites, burial sites and a garden bed site, as well as at least one historical period logging camp site. Site 20ME61, the garden bed site, is considered eligible for listing on the National Register of Historic Places (NRHP). One site (20ME2) is considered not eligible for the NRHP. The other five sites (20ME3, 20ME4, 20ME10, 20ME17 and 20ME23) may be eligible, but have not been evaluated for NRHP eligibility.

During the period from September, 2009 to August 2011, Commonwealth Cultural Resources Group (CCRG) conducted archaeological field survey of the Back Forty project area. In August of 2015, the 106 Group conducted a survey of an area just north of the boundary of the Back Forty project area as it was depicted in the previous CCRG reports. The CCRG surveys identified 27 new archaeological sites within the Back Forty project area. Those sites included 13 pre-contact Native American sites, 5 historical period sites and 9 sites for which age could not be determined. Thirteen of the sites are between River Road and the Menominee River. One site is east of River Road, but is within roughly 200 feet of the road. The rest of the sites are further east and scattered over the project area.

CCRG provided recommendations regarding NRHP eligibility for the sites. Two sites (20ME113 and 20ME115) were investigated further, and were determined to be natural rather than cultural features, so they are not considered archaeological sites. Of the remaining 25 sites, CCRG recommended that seven sites are not eligible: 20ME98, 20ME104, 20ME106, 20ME107, 20ME112, 20ME114 and 20ME127; eight sites are probably eligible: 20ME99, 20ME101, 20ME102, 20ME103, 105, 20ME108, 20ME111 and 20ME125; and for the other ten sites, the information available is not sufficient to make recommendations.

The 106 Group surveyed an area of approximately 19.4 acres. Shovel testing resulted in two positive tests, each of which produced a single waste flake from stone tool-making. Stone artifacts like these are indicative of pre-contact Native American presence. The two positive shovel test locations were assigned separate site numbers: 20ME146 and 20ME147. No other evidence for the presence of archaeological sites was found within the surveyed area. The 106 Group recommended that sites 20ME146 and 20ME147 are not eligible for the NRHP. Single artifact find spots like these two sites typically do not possess the characteristics necessary to make them eligible sites. We agree that 20ME146 and 20ME147 are not eligible for the NRHP.

Based on the archaeological survey work completed for the project, there are 18 archaeological sites within the project area that may be eligible for the NRHP. Determining eligibility for these sites would require additional field investigation of the sites to determine whether they hold sufficient research

potential to make them eligible for the NRHP. Conducting those investigations is one option. Any of the sites that proved to not hold sufficient research potential would be considered not eligible. Sites judged to be not eligible would not have to be avoided, nor would they warrant any further consideration.

Another option, however, if feasible, is to avoid the 18 sites that may be eligible for the NRHP. A 50-foot buffer zone should be established around each of these sites using snow fence or a similar type of barrier. Trucks and heavy equipment must be kept off of the sites.

It is important to recognize the archaeological sensitivity of the Back Forty project area in terms of both the information potential of the sites located there as well as the significance the sites hold for tribal groups. If I can answer any questions, please let me know.

From: Dean Anderson
To: Kris Tunney
CC: Martha MacFarlane-Faes
Date: 7/18/2008 8:24 AM
Subject: Permits

I pasted this into a new email; hope this works.

Kris,

Here is some information on the AE permit applications.

AE2008-5

First, I noticed that the application form included the SE 1/4 of the SE 1/4 of Section 1, but that parcel was not included in the Description of Lands on the permit form.

Portions of archaeological site 20ME61 may be present on the state land included in this permit. It is not possible to know for sure whether the site is partly on state land by looking at the USGS map, but the site appears to extend onto state land.

Site 20ME61 is an extensive site that runs along the Menominee River for roughly 2 miles. The site consists of prehistoric garden beds, but may include other features as well. There are other sites in the near vicinity, including a prehistoric Native American village site, and burial mounds. Site 20ME61 is not listed on the National Register of Historic Places, but the State Historic Preservation Officer (SHPO) considers the site eligible for listing, which affords the site the same protection it would have if it were listed.

Because of 20ME61 and the other sites nearby, this is a very sensitive area archaeologically. Consequently, it is quite possible there may be tribes that would want to be notified of the fact that archaeological survey is planned for that area. I would recommend contacting the Ho-Chunk (Menominee) tribe in Wisconsin, and perhaps the Lac Vieux Desert Tribe of Ojibewa. Let me get back to you about tribal notification for this permit and the other permits. I want to double check on which tribes would be appropriate to notify, and then I can send you the contact information.

AE2008-6

We have no sites recorded on any of the parcels described in the permit application. The archaeological survey being carried out in association with this permit is part of the Kennecott mining project. The Keweenaw Bay Indian Community and the Lac Vieux Desert band are heavily involved in this project, and I think it would be prudent to notify them

AE2008-7

We have no sites recorded on this parcel. As with 2008-6, this is part of the Kennecott project, and I think the same tribes that should be notified for the 2008-6 permit should be notified for this permit as well.

That's what I have for now. If you have other questions, let me know, and I will look into the tribal notification issues.

Dean

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203 (g)(iii)(D); Part 632 rules require the applicant to provide a QA/QC plan as part of the mine, reclamation, and environmental protection plan.

133. Provide a plan for monitoring the effectiveness and integrity of the cutoff wall.
134. Provide an explanation as to how the proposed list monitoring parameters and the proposed target detection limits in Table 2-1 was determined, including the reason(s) for excluding cobalt, uranium, vanadium, hardness, radium, volatile organic chemicals, acrylamide, and any other organic chemical used in the mineral processing area, from the list.
135. Will the annual assessments of flora, fauna, fish, and wildlife habitats and biodiversity follow the same protocol as the baseline studies?
136. Section 9.2, Postclosure Groundwater Monitoring Plan: "...leachate wells LW-12S and LW-12D will be installed in the closed pit area..."; Figure 9-1 shows wells labeled CW-12S and CW-12D located in the backfilled pit area. Clarification is needed as to whether the wells in the figure are the wells referenced in the text in Section 9.2. What is the difference between 12S and 12D in terms of the hydrostratigraphic zones proposed to be monitored?
137. Section 9.4: What environmental monitoring is planned during mine years 8-10 (reclamation activities)?
138. Table 6-1: What is the definition of a major storm event?

Contingency Plan, Volume IE, Appendix J

139. It is mentioned that high-cal limestone could be added as an additional measure to offset the formation of acid leachate. In other parts of the application, it is proposed that some type of buffering material will be added to the pit backfill and/or TWRMF(s), with limestone as a possibility. Water quality was modeled to take into account a buffering amendment. Why is the addition of limestone amendment included as a contingency if it has been determined that acid leachate from waste will most likely form?
140. Provide a risk analysis for a flood that inundates the mine area. Explain what contingencies will be in place if the mine area is flooded.
141. How will groundwater impacts from potential leakage from the CWBs be evaluated?
142. Stockpile liner failure: How will the stockpiles be lined? Is this referring to the OBA?

143. Where will monitoring devices be installed to notify staff of abnormal water levels at the OBA?
144. Section 2.1.4, covered oxide and flotation ore stockpiles: Is the concrete pad sloped to a sump described under the mitigation of risks the same sump described for the OBA?
145. How will monitoring of the integrity of the cutoff wall before and after blasting events be accomplished?
146. What contingencies will be in place if the cutoff wall is determined through performance monitoring to be ineffective for its intended purpose?
147. Will the fuel storage area be monitored for groundwater impacts?
148. What are the potential impacts to facilities of ground seismic vibrations from blasting, including the cutoff wall, if any?
149. What is the potential risk to the environment or public health from damage to facilities from severe thunderstorms or tornadoes, and what are the proposed response measures?
150. Section 3.3: The River Road, which is located along the west side of the pit, will be temporarily closed during scheduled blasting within the pit in the vicinity of the road. Other parts of the application imply that the road will be closed to the public through the mine area during operations. No plans were offered to divert the road around the pit or the mine area, and all figures in the application depicting the development plan show the River Road as "ending" at the pit. The contingency plan implies this road will be open. Clarify what is to become of the River Road during operations and postclosure.

Financial Assurance, Volume IE, Appendix K

151. Table 2-1, postclosure monitoring activities: Requests to reduce environmental monitoring during the postclosure period cannot be approved prior to completion of reclamation. Provide a cost estimate for quarterly groundwater and surface water monitoring at all proposed monitoring locations for the complete list of analytes, and flora and fauna monitoring throughout postclosure monitoring for end of LOM operating period.
152. What is the estimated length of time it will take to complete reclamation at end of construction? (3 years for end of LOM)

Eric,

Sorry I didn't get back to you sooner; the email went to my old Groupwise account instead of to my new Outlook account, so I lost track of it.

Anyway, the two proposed test borings in [REDACTED] are along a trail that was surveyed for archaeological [REDACTED] was found, so I see no problem with those.

In [REDACTED], the area in which they plan to drill has also been [REDACTED] were identified in the northern part of the [REDACTED]: 20ME112, 20ME113, 20ME114, and 20ME115. Aquila [REDACTED] knows their locations. It is important that they are careful to avoid the archaeological site locations when drilling test holes. The archaeological sites need to be marked with ribbon, or in some other fashion, to prevent the sites from being inadvertently damaged.

I do not know whether the [REDACTED] has been surveyed, but Aquila and I [REDACTED] that information. If archaeological resources have been [REDACTED] in that parcel, the same precautions described above for [REDACTED] need to be taken.

Thanks Eric. Let me know if you have any other questions.

Dean

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JENNIFER GRANHOLM
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF HISTORY, ARTS AND LIBRARIES
LANSING

DR. WILLIAM ANDERSON
DIRECTOR

February 7, 2006

ERIC THOMPSON
UNIT MANAGER
MICHIGAN DEPARTMENT OF NATURAL RESOURCES
FOREST MINERAL AND FIRE MANAGEMENT
6833 HIGHWAYS 2, 41 AND M-35
GLADSTONE, MI 49837

FILE COPY

RE: ER-06-175 DNR Land Use Permit for Mineral Exploration, Minerals Processing Corporation, T35N,R29W, Section 12 NENW, NENE, SWNE, SENW, Lake Township, Menominee County (DNR)

Dear Mr. Thompson:

We have received your request for review of the above-cited Land Use Permit for Mineral Exploration. The area proposed for testing is very near archaeological site 20ME6. This site is comprised of prehistoric garden beds extending along the banks of the Menominee River for a substantial distance. Burial mounds and other sites also exist along the river in the vicinity of the project, but none have been recorded in the area proposed for testing.

We request that the applicant avoid testing in the northwest quarter of Section 12. If the applicant cannot avoid testing in this area, then a qualified archaeologist should be consulted to monitor the work. The State Historic Preservation Office has a list of such archaeologist consultants who work in Michigan. The other test areas are further east in the section (in the eastern half of the section) and appear to be far enough east of the river that sites will be avoided.

If you have any questions, please contact Dr. Dean Anderson, Historical Archaeologist, at (517) 373-1618. Please reference our project number in all communication with this office regarding this project. Thank you for this opportunity to review and comment, and for your cooperation.

Sincerely,

Brian D. Conway
State Historic Preservation Officer

BDC:DLA:mmf

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